



"European Shipbuilding Supply Chain Statistics"

A REPORT FOR SEA EUROPE BY



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0 Executive Summary

SEA Europe, the European “Shipyard’s and Maritime Equipment Association” is representing the vast majority of the European maritime technology industry. With member associations from 16 European countries including Norway and Turkey and without members from United Kingdom and Sweden, SEA Europe represents in total a larger community of shipyards and marine equipment manufacturers than the EU-28 represents.

The analysis in this statistical study looks at the entire shipbuilding supply chain in EU-28 countries plus Norway and Turkey. It further aggregates the figures for EU-28 and for the SEA Europe 16 member countries to the Economic Footprint of European Maritime Technology Industries (aggregated Figures for shipbuilding, boatbuilding, ship/boat-repair, 1st and 2nd tier suppliers) (Figure 1). It needs to be said that “Maritime Technology Industries” may need to incorporate additional maritime technology providers, e.g. traffic control, offshore wind industry, navy supplies and some other offshore oriented or specialised markets. This will create an even bigger economic footprint of the industry but need to be left to some future analytical exercise.

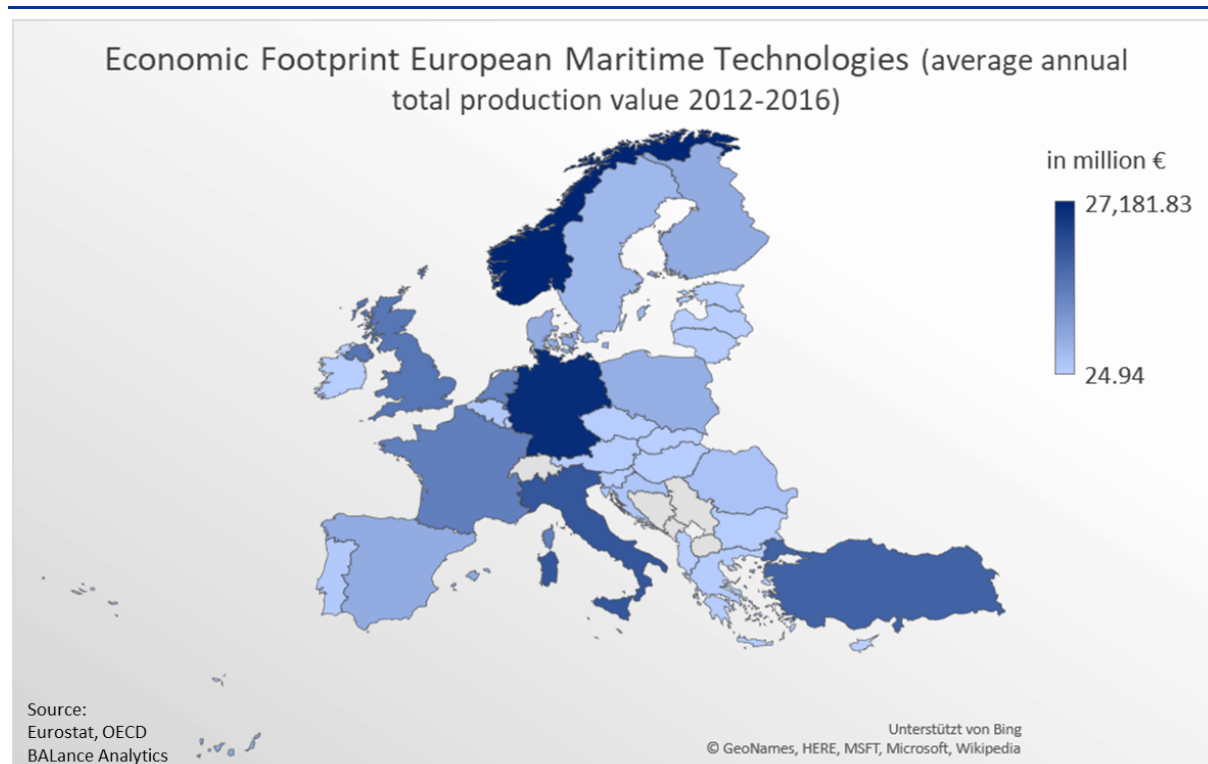


Figure 1: Economic Footprint of European Maritime Technology Industries (aggregated Figures for shipbuilding, boatbuilding, ship/boat-repair, 1st and 2nd tier suppliers)

[Sources: Eurostat, OECD, BALance Analytics, 2019]

The analysis in this statistical study leads to the conclusion that the SEA Europe maritime technology industry, namely shipbuilders, boatbuilders, repair yards jointly with 1st and 2nd tier suppliers, is a leading global industry representation in terms of aggregated production values of shipbuilding and ship-systems production. With an aggregated production value of EUR 128,600 million¹, the SEA Europe 16 member countries represent ~26.6% of the global production value for maritime technology production of EUR 482,500 million². SEA Europe thereby represents an ~12% higher economic footprint than the aggregated figures for EU-28. As for this calculation the global production value for an earlier period has been maintained, it needs to be said that due to economic pressure on the commodity ship market, the global figure might be smaller in reality.

The economic calculations for the period 2012-2016 also translate into a direct employment of appr. 660,000 employees (8.3% more than EU-28) in the shipbuilding supply chain and aggregated export figures of about EUR 29,000 million for marine supplies (49.6% more than EU-28). The major difference between SEA Europe and EU-28 is that no UK association is a member in SEA Europe whereas Norway and Turkey are members.

As individual nations, Germany, United Kingdom, Italy, France and The Netherlands as the top 5 EU-28 countries plus Norway, are the top 6 maritime technology countries in Europe and represent more than 79% of EU-28 countries plus Norway's total production value. However, and as already outlined in a previous study for the European Commission, the position of SEA Europe as whole, as well as EU-28 is only a virtual strong position, as long as there is no targeted industry strategy jointly with an aligned clear targeted European shipbuilding policy in place, offering an integrated and unified approach towards international competition and protectionism.

¹ Average annual value for the period 2012-2016 acc. BALance Analytics

² Average annual value for the period 2010-2014 acc. BALance Analytics for "Study on New Trends in Globalization in Shipbuilding and Marine Supplies", EU Study 2017

1 Introduction - Objectives and approach

The objective of this study is to create an overview of the European shipbuilding supply chain industry, covering basic economic and company characteristics.

The statistical analysis applied builds on a harmonised structure for systems, equipment components, materials and services as that used by the authors in a previous study, thus providing the basis for statistical analysis, extrapolation and evaluation.

In order to provide a comprehensive retrospective overview on the development of the industry, the study makes use of averaged statistical data for industrial groups available in different public databases, i.e. Eurostat, OECD, national statistics etc. This is supplemented with information provided by suppliers, industrial associations, customers and classification societies. Since no single data source alone can create comprehensive and reliable results, these different sources and approaches to data collection are used in conjunction with one another. In this fashion, this report provides an updated retrospective view on the economic performance of the shipbuilding supply chain, i.e. shipbuilding, boatbuilding repair and related supply industry and services. This retrospective view on the economic performance mainly covers the period of 2009 to 2016 and provides aggregated annual average values for SEA Europe and EU-28.

2 Shipbuilding supply chain analytics

2.1 European shipbuilding and marine supplies – A statistical view on the supply chain

The size of the shipbuilding supply chain has been projected based on available national studies and the following official statistical data sources:

- ◆ Eurostat SBS – Structural Business Statistics
- ◆ OECD STAN Database
- ◆ Input / Output Tables from OECD
- ◆ Some national statistics

Where necessary, the project team has made appropriate assumptions and suitable inter- and extrapolations. The starting points for the analysis of the shipbuilding supply chain are the “production value” and “value added” indicators of the official statistics for NACE classes “shipbuilding,” “boatbuilding” and “repair of ships and boats”. These statistical classes contain ship newbuilding, naval shipbuilding, boatbuilding, repair and conversion of ships and boats as well as building of offshore

vessels and platforms.³ The difference between “production value” and “value added” determines the “purchasing-value”.

The “purchasing value” comprises all goods and services procured by the yards, including energy, food and other non-marine supplies products and services. Therefore, the purchasing value for “shipyard and energy cost” has been estimated and separately valued. A further adaption has been made for “purchasing-values” relating to customers other than shipyards. Whereas the newbuilding costs for ships, naval vessels and offshore platforms are contained in the purchase value, those for maintenance and repair directly performed by the marine supplies industry and the shipping and offshore companies are not covered. Therefore, the purchasing values of shipping companies and, as far as possible, also for offshore companies have been considered as well.

In a second step, the calculated purchase values have been divided into imported and domestic purchase values based on country specific OECD Input Output tables in order to reflect the level of internationalisation of the maritime supply chain in each country. Furthermore, the “value added”, “domestic purchase value” and “imported purchase value” indicators for several NACE industry classes representing the maritime supplies industry have been gathered and analysed from Eurostat. In particular, the “domestic value added” of each supply chain tier gives a good indication of the socio-economic impact of the maritime supply chain in Europe.

On this basis, the average size of the European shipbuilding supply chain has been calculated as an average figure based on the period 2012 to 2016.

3 Shipbuilding and Purchase values over time

Initially, data has been derived from the official statistics for shipbuilding production values, purchase values and employment.

Data has been collected, combined and, where necessary, inter- or extrapolated the available statistical data over the time period 1995 to 2016 (plus some estimates for 2017). For the years 2008-2014, the conversion from the industrial classification system NACE1.1 to NACE 2.0 was necessary; with help of the colleagues from Eurostat inconsistencies have been minimised. Following that Figure 6 presents the development of the three indicators mentioned above for the 20-year period 1997 to 2016.

The 20-year time series for the EU-28 (Figure 2) shows a continuous growth of the production value up until 2008, whereas the total number of employees remained relatively stable. After the peak in 2008, with a total production value of more than EUR 51,000 million, the European ship- and

³ According to the NACE Rev. 2-Statistical classification of economic activities in the European Community; Published by Eurostat Methodologies and working papers

boatbuilding industry faced a substantial drop in 2009 (-17.7% for EU-28). Comparing the averages for the period 2001-2011 with the period 2012-2016 shows the production value fell by 4.1% only. In other words, after 2009, the European shipbuilding industry has managed to stabilise at a level equal than that in 2006 and has even managed some growth in the years until 2016. However, the employment level for shipyards has declined noticeably between 2008 and 2011 (-13.1%) but stabilised with some limited growth until 2016.

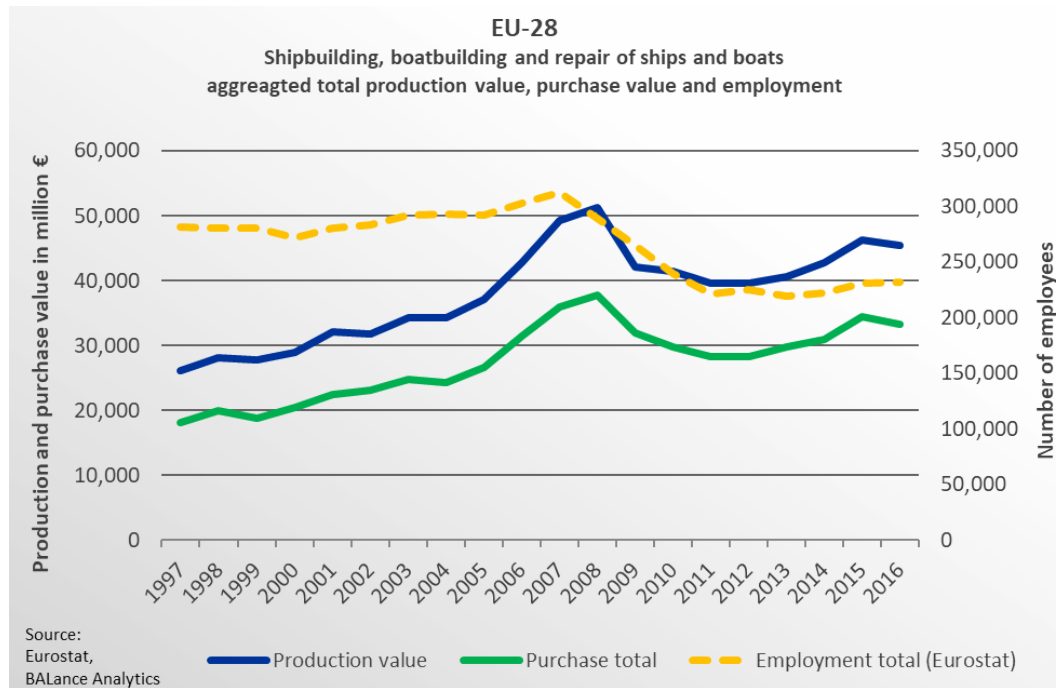


Figure 2: Shipbuilding, boatbuilding and repair of ships and boats - EU-28– Timeline Production Values, Purchasing Values and Employment

[Sources: Eurostat, BALance Analytics, 2019]

Overall production values are given for shipbuilding, boatbuilding and repair in ship- and boatbuilding for the time period 2009 to 2017 (Figure 3). A closer look into these three subsectors shows that one contributor to growth is the sector for “Repair of ships and boats”. The major sector “shipbuilding” shows some growth due to increasing order books for complex vessels (especially cruise vessels), whereas offshore shipbuilding in the contrary shows weaknesses. The numbers for boatbuilding stagnate in the given period but show also some tendency for growth.

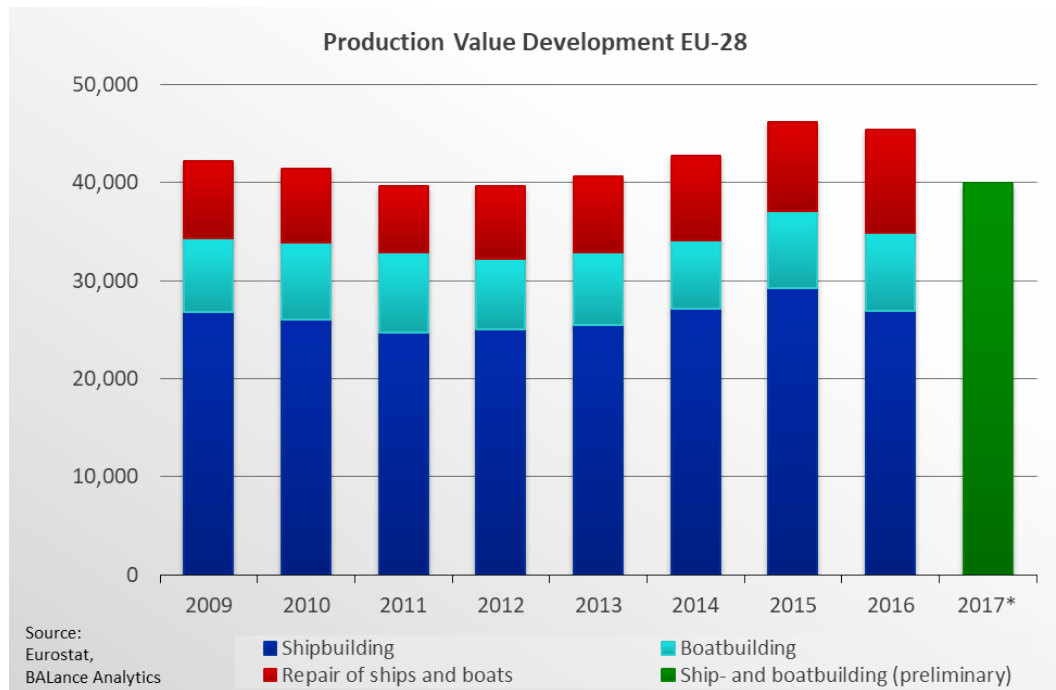


Figure 3: Regional distribution of the world shipbuilding production values for shipbuilding [million EUR] according to NACE 2 regime (2017 global figure for shipbuilding and boatbuilding – estimate)

[Sources: Eurostat, BALance Analytics, 2019]

Comparing the timeline of EU-28 (Figure 2) with the timeline for SEA Europe 16 (Figure 4) for the period 2008 to 2016, it can be noted that SEA Europe member countries did not suffer to the extent of EU-28 Member States and stabilised production and employment comparably better.

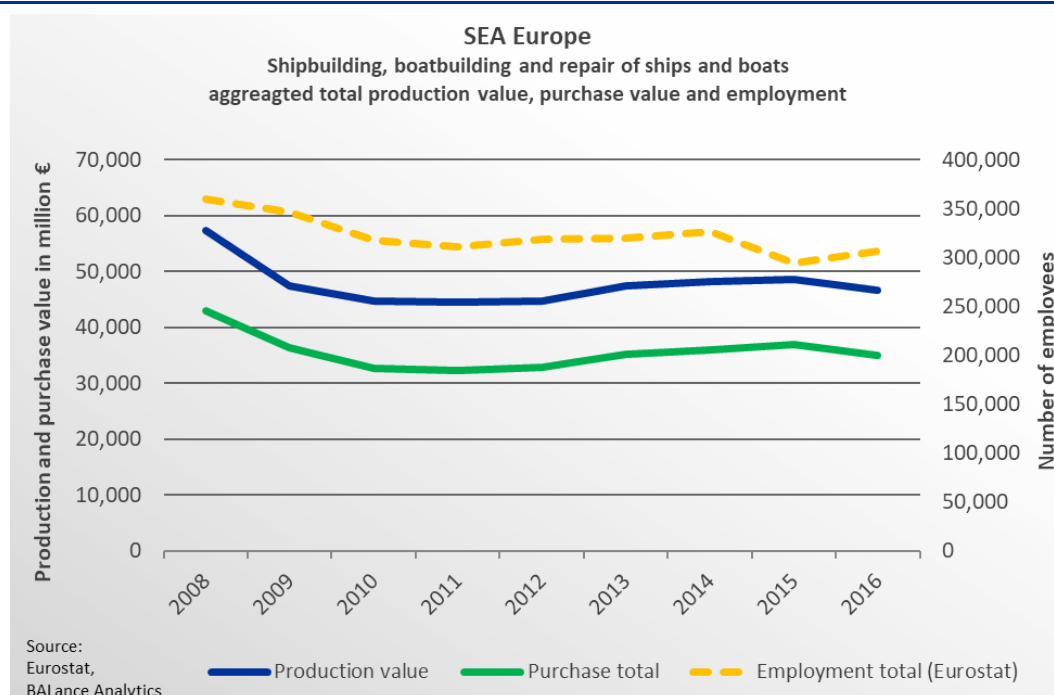


Figure 4: Shipbuilding, boatbuilding and repair of ships and boats – SEA Europe 16 – Timeline Production Values, Purchasing Values and Employment

[Sources: Eurostat, BALance Analytics, 2019]

Building again on timeline data for EU-28, Figure 5 shows the related timeline for purchasing values created by the three sectors shipbuilding, boatbuilding and shipbuilding/boatbuilding repair. Comparing the purchasing averages for period 2006-2010 with period 2010-2014 indicates that purchasing values fell by 13%. This is slightly higher than the overall production value for shipbuilding and might be explained through an increase of value added by the shipyards themselves.

A country specific analysis of the purchase values for EU-28 countries demonstrates the high impact of five major shipbuilding countries. As shown in Figure 6, six countries - Italy, Germany, France, Netherlands, Spain and United Kingdom - are responsible for more than 80% of the total purchase value in EU-28 according to the statistical analysis.

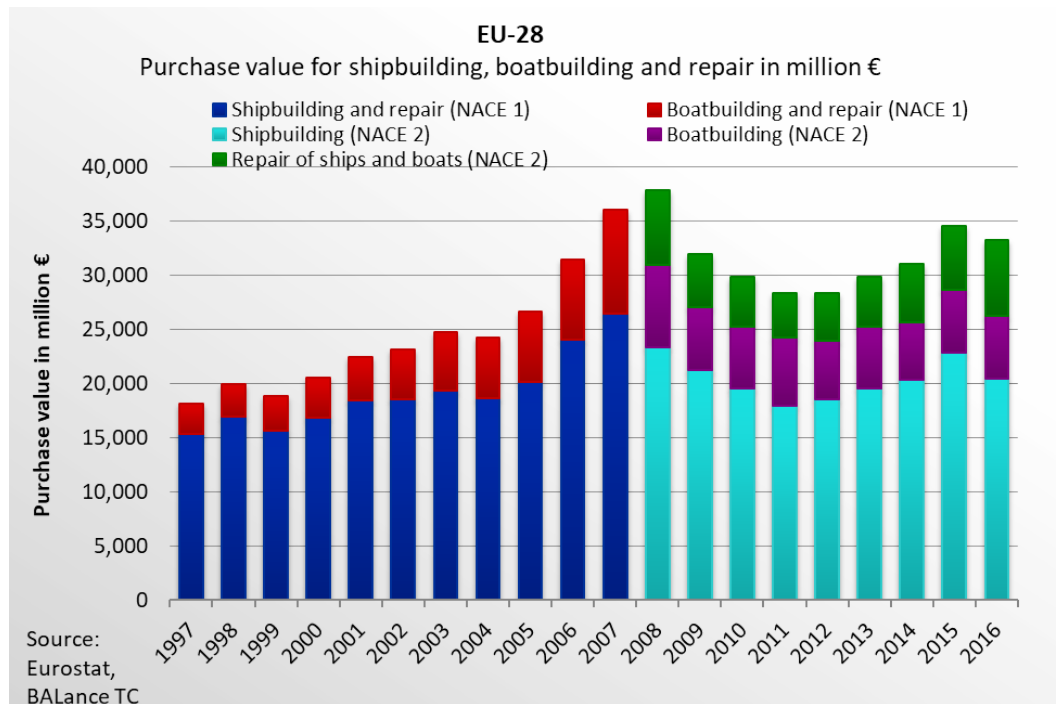


Figure 5: Regional distribution of the world shipbuilding production values for shipbuilding [million EUR] according to NACE 2 regime

[Sources: Eurostat, BALance Analytics, 2019]

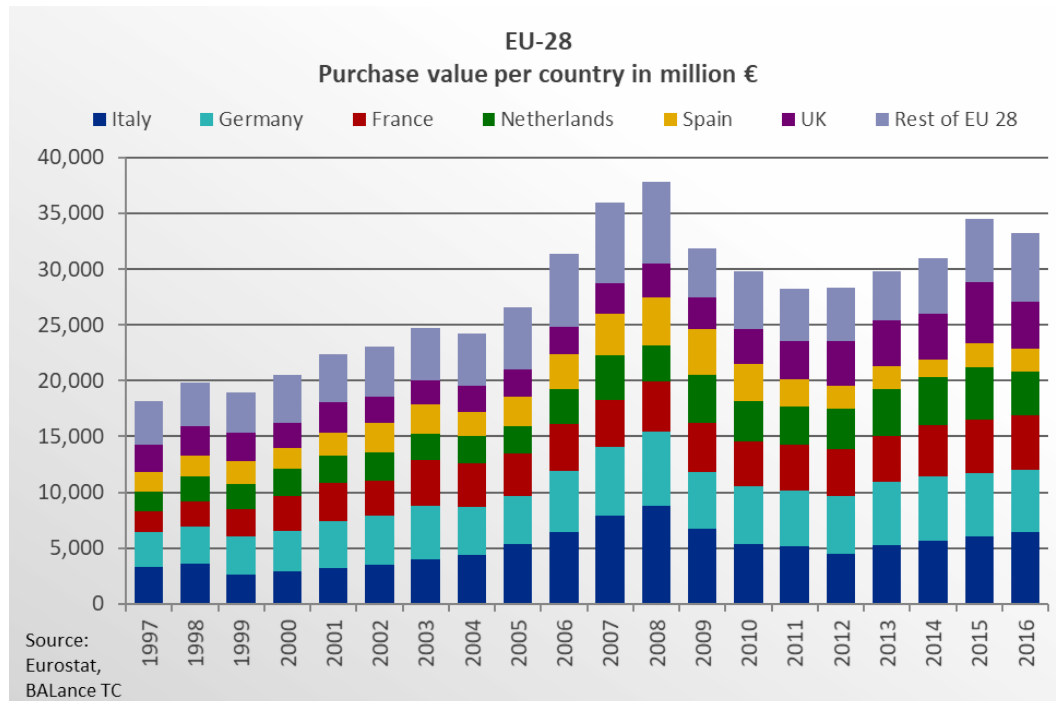


Figure 6: Purchase value for ship- and boatbuilding per country in million EUR

[Source: Eurostat, BALance Analytics, 2019]

Based on the given figures another analysis is possible for the ratio of purchasing values and production values (Figure 7). The purchase value share of the total shipbuilding production value is an important indicator for the supply chain analysis, demonstrating changing levels of outsourcing over time. In the 1990s, we have seen major outsourcing strategies by shipyards, which materialised statistically as increasing purchase/production ratios. Since the trend towards more outsourcing at shipyards continued, present levels of total purchasing values arrive at ratios between 65% to 85%. Outsourcing strategies initially have been followed to reduce cost and to slim down production in shipyards. In the boom years before the financial crisis with increasing shipbuilding activities (2002-2005), purchasing ratios had further increased in order to compensate for lack of production capacity and supplement in-house capacity using external sources. However, national differences continue to exist also depending on different production portfolios.

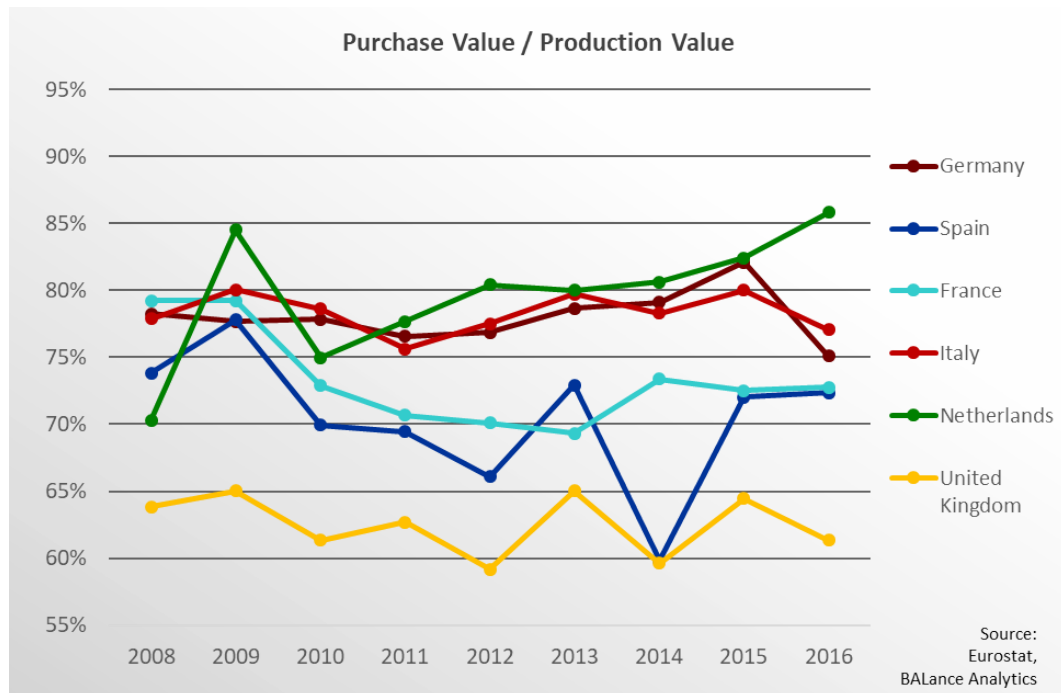


Figure 7: Ratio purchase value / production value

[Sources: OECD Eurostat, BALance Analytics, 2019]

3.1 Shipbuilding and purchase values in single countries

As discussed above, the general development of the ship- and boatbuilding industry after the drop of production in the period 2008-2013 is characterised by recovering and slow growth in the overall picture. In the five-year period 2012 to 2016, the overall EU-28 - production value for shipbuilding, boatbuilding and repair grew from EUR 39,700 million in 2012 to EUR 45,400 million in 2016, which translates to an average annual growth rate of ~3 %. However, the general development in the maritime technology industry did not affect all maritime economies equally. Analysis of the production value and related purchase value, using a trend analysis, for the European countries leads to some noticeable results (Figures 8, 9, 10, 11).

The development of the ship and boatbuilding industry in individual countries with more than EUR 1,000 million production value in shipbuilding can be categorised into two major groups (Figures 8, 9). The first group represents those countries where in the period 2012-2016 the situation has stabilised, and which continue production on a stable level or with moderate growth. Countries in this group comprise Italy, France, Germany, Finland, Turkey and Poland, which all realised an annual growth in the range of 2.5-7% (exception Finland with growth of 15.5%). The second group comprises countries where the development has been inconsistent and shows some weakening trends over time. In this group we find Norway, The Netherlands, Spain and United Kingdom, but with considerably high production values. Norway has mostly suffered from the weakening offshore market, in which Norway used to generate comparably high production values, showing a negative development in production values of more than 30%, falling from appr. EUR 12,000 million in 2013 to less than EUR 7,000 million in 2016. This, however, is still on a very high level. Without statistical prove available now, the impression is that this will level out and may well improve again in the coming years.

Please note, figures 8, 9, 10 and 11 have been generated with different scales. for the y-axis to allow better readability.

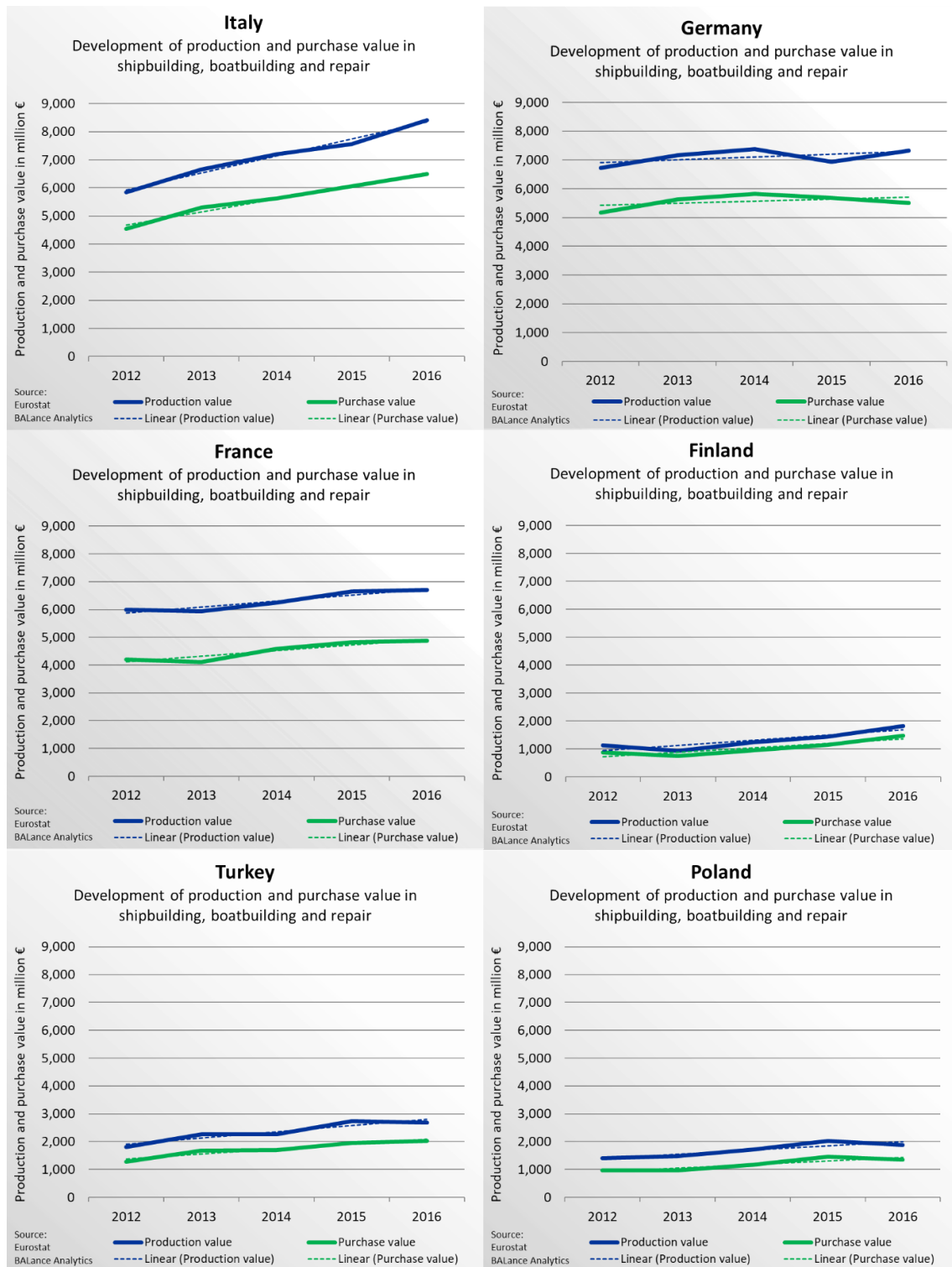


Figure 8: Development of production and purchase value in shipbuilding, boatbuilding and repair
Italy, France, Germany, Finland, Turkey and Poland

[Source: Eurostat, BALance Analytics, 2019]

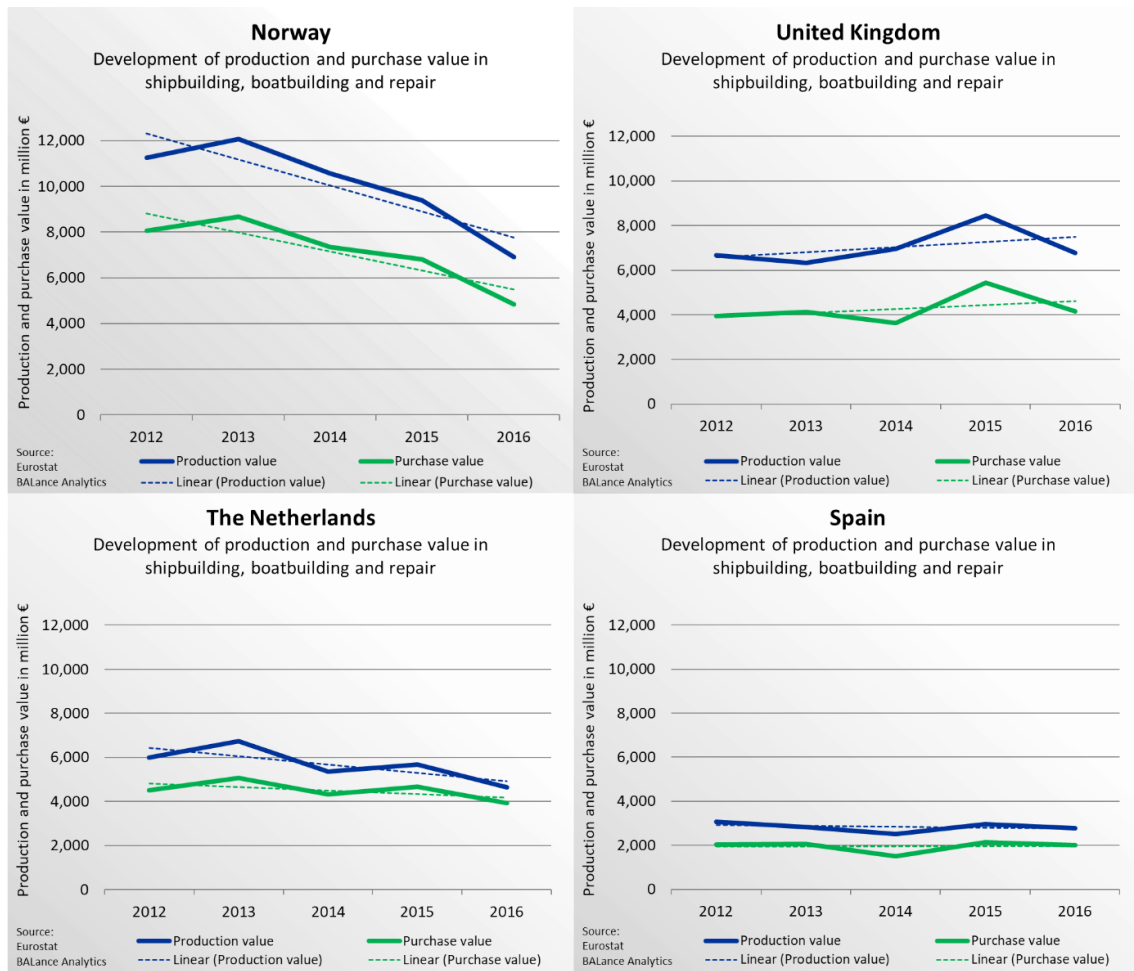


Figure 9: Development of production and Poland value in shipbuilding, boatbuilding and repair
Norway, United Kingdom, The Netherlands, Spain, Turkey

[Source: Eurostat, BALance Analytics, 2019]

The following figures 10 and 11 show in addition the development for single European countries with production values between EUR 100 million and EUR 1,000 million.

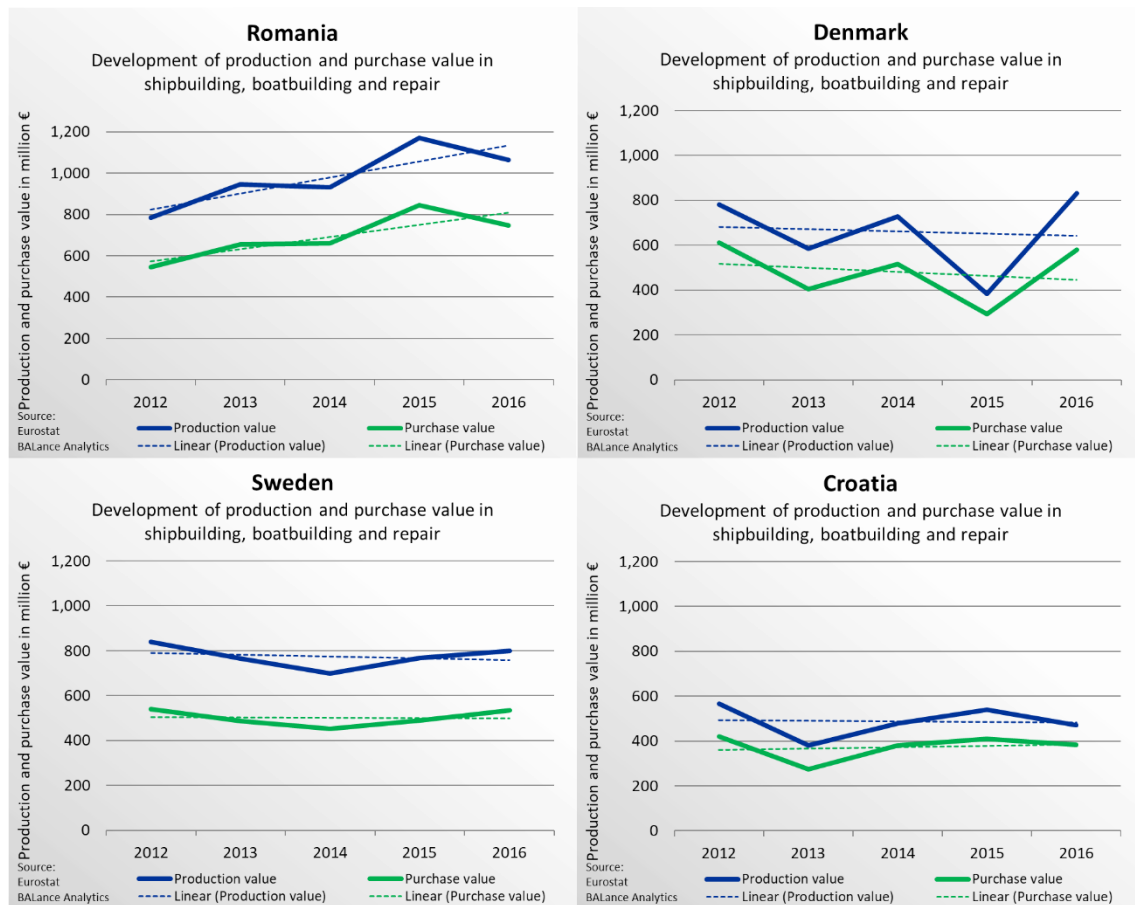


Figure 10: Development of production and Poland value in shipbuilding, boatbuilding and repair
Romania, Denmark, Sweden, Croatia

[Source: Eurostat, BALance Analytics, 2019]

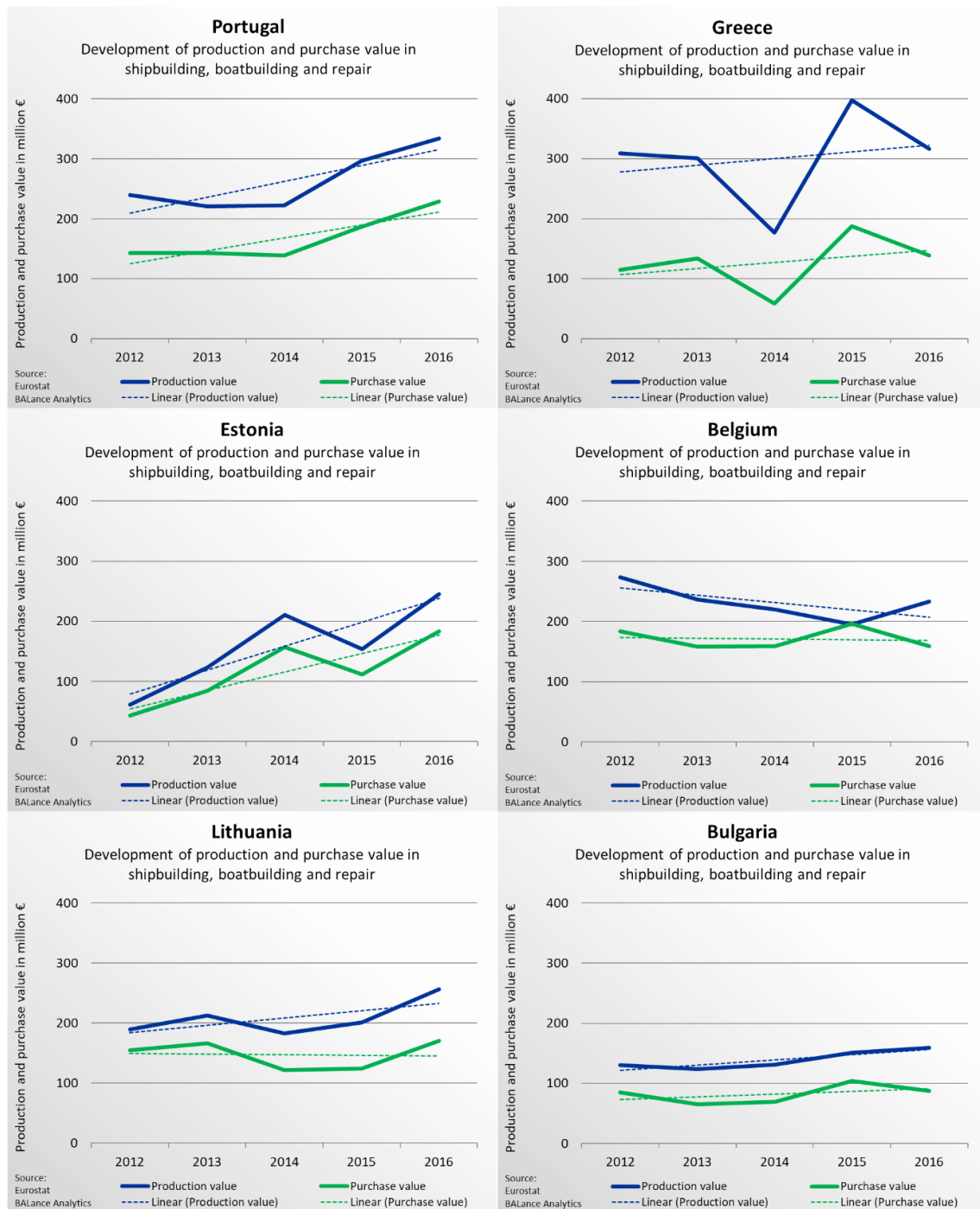


Figure 11: Development of production and purchase values in shipbuilding, boatbuilding and repair
Portugal, Greece, Belgium, Lithuania, Bulgaria, Estonia

[Source: Eurostat, BALance Analytics, 2019]

4 Overall shipbuilding supply chain portfolios

The statistical representations given above provide only a partial insight into the shipbuilding and boatbuilding situation and their related purchasing values in these countries. For an overall evaluation of the maritime technology industry a closer look to the supplier side is required. An evaluation of the suppliers' situation is more complex and need to be done by considering effects through import of supplies by the shipyards and export of suppliers into international markets and additional sales to customers other than the national shipbuilding industry. Therefore, the production and purchasing values of the shipbuilding- and boatbuilding industries based on statistical data are basis for the analysis of economic data in the extended shipbuilding supply chain. In the following analytical steps, the 1st and 2nd tier suppliers of the shipbuilding supply chain have been analysed in terms of value added, imported and domestic purchase values as well as domestic and international sales. In this manner, the analysis has been performed for individual countries taking account of their respective statistical import/export ratios available from Eurostat, national statistical offices and Input-Output tables provided by the OECD. Additional information was derived from national studies performed by some of the EU Member States. Based on the statistical production value, the value added and the domestic and imported purchase value, the number of full time-equivalent employees and the number of enterprises has been estimated by using the statistical figures available from Eurostat for the average turnover/employee and the average number of employees per enterprise.

The analysis of the 1st and 2nd tier supplier distinguishes between the following 8 categories of marine supplies according to the structure available from input output statistics:

- External services, subcontracts (Engineering and Design)
- Material – Steel and non-ferro materials
- Material – Paint and Coatings
- Material – Other (Textiles, Plastics)
- Goods – Steel products
- Goods – Mechanical engineering, incl. engines
- Goods – Electrical engineering, electronics
- Goods – Others

It should be noted that due to the variances of statistical calculations, the accuracy of the national portfolios is likely to be stronger for those countries with bigger production values than for those having marginal production values. Variances may occur through corrections for markets other than the purchasing market of shipyards. Corrections have been made for purchasing by shipping companies and offshore companies directly, which are not included in production values of the shipyards. Further corrections would have been necessary for direct purchasing of the navy for maintenance and repair, but these could not be properly performed due to a lack of data. As a result, the overall result is potentially slightly underestimated.

Based on reasonably reliable data, the results of the national statistical analysis of European Countries have been aggregated into an overall SEA Europe 16 Portfolio (Figure 173) and an overall EU-28 portfolio (Figure 17) representing annual average data for the period 2012-2016. In summary EU-28 generate the following values with SEA Europe 16 figures given in brackets:

Shipbuilding, boatbuilding and repair generate an overall annual average production value of EUR 42,900 million (EUR 47,100 million), employing 285,000 people (313,000 people) in more than 27,000 companies.

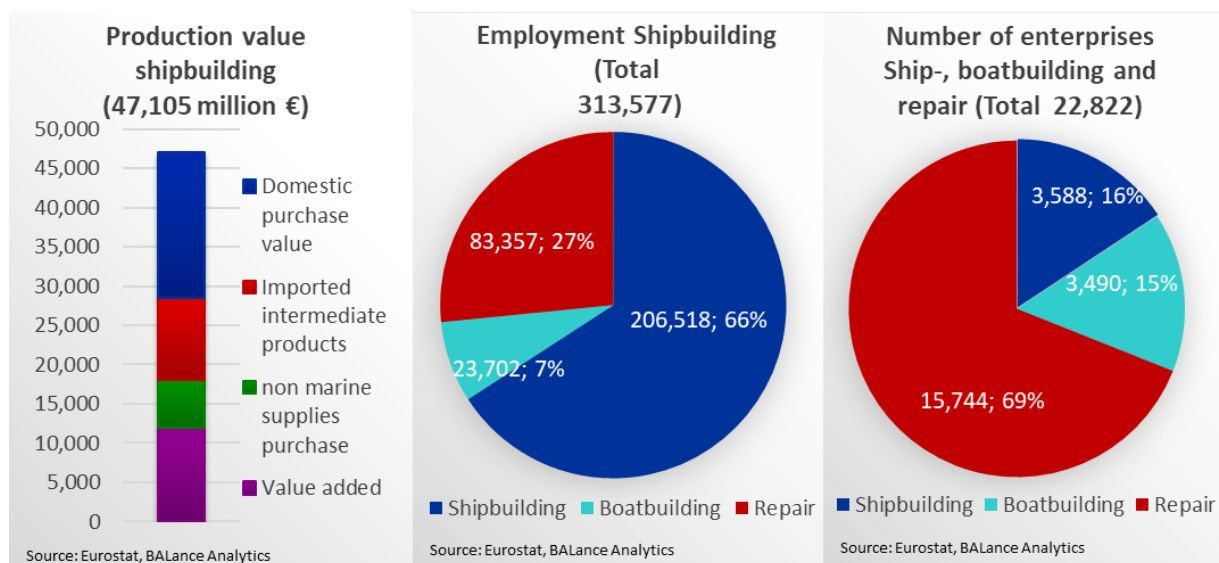
With an overall production volume of EUR 44,500 million p.a. (EUR 50,300 million p.a.), the 1st tier of the shipbuilding supply chain reaches an even higher production value building on their high production values for export. Material, goods and services worth of EUR 24,900 million are produced by EU-28 Member States for export (aggregated intra EU and extra EU-28 export). An even higher value of EUR 29,100 million are produced by SEA Europe 16 Member States for export (aggregated intra EU and extra EU-28 export). Consequently, the 1st tier of the shipbuilding supply chain engages more than 217,000 employees (226,000 employees) in more than 30,000 enterprises across Europe. It needs to be said that especially for suppliers, the share of production for maritime markets is very often not so high. In combination with a very high number of small and medium sized companies (SMEs) this explains the high number of companies involved.

The economic strength of the 1st tier suppliers within European shipbuilding supply chain in combination with the distinct intra-European trade is responsible for a powerful group of sub-suppliers in the 2nd tier of shipbuilding supply chain. The analysis here estimates a total production value of EUR 27,100 million (EUR 31,300 million) for the 2nd tier suppliers and additional 107,000 employees (120,000 employees).

Portfolio - SEA Europe



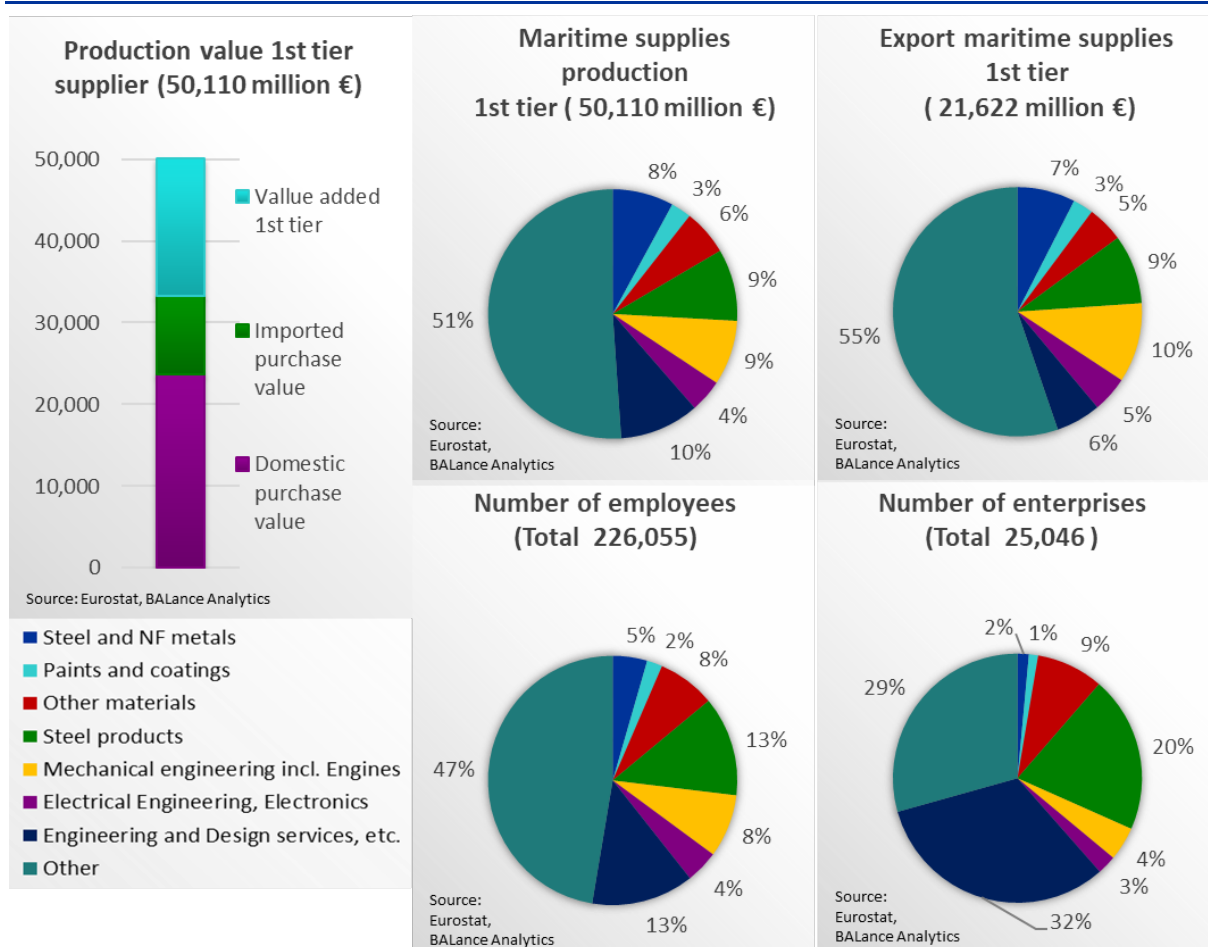
Shipbuilding (million EUR)		Indicators	
Production value	47,105		
Value added (-)	11,924	25.31%	Value added / Production value
non marine supplies purchase (-)	6,119	12.99%	Purchasing value overhead / Production value
Marine equipment purchasing value	29,061	61.70%	Purchasing value / Production value
Imported intermediate products (-)	10,412	35.83%	Import intermediate products/ Purchasing value
Domestic purchasing value	18,592	63.97%	Domestic purchase value / Purchasing value



SEA Europe - Marine supplies 1st tier (million EUR)		Indicators	
Production value for domestic ship- and boatbuilding	18,592	36.99%	Share for the domestic market
Production value for other domestic maritime markets (+)	10,054	20.00%	Share of other maritime markets
Production value export Extra EU 28 (+)	21,622	43.01%	Share of export market extra SeaEurope
Production value of maritime supplies (1st tier)	50,267		
Value added (1st tier supplier) (-)	16,817	33.46%	Value added/Production value
Purchasing value of 1st tier suppliers	33,450	66.54%	Purchasing value / Production value
Import share (-)	9,646	28.84%	Import share / Purchase value
Domestic purchasing value (2nd tier suppliers)	23,804	71.16%	Domestic purchase value / purchasing value

Figure 12: Aggregated economic portfolio SEA Europe 16: Part 1 (2012-2016)

[Source: Eurostat, National Statistics, Economic Studies and BALance Analytics, 2019]



SEA Europe - 2nd tier suppliers (million EUR)

Domestic production value for domestic 1st tier suppliers (2nd tier)	23,804
Production value for export (+)	7,452
Total domestic production volume 2nd tier suppliers	31,255
Value added (2nd tier supplier) (-)	14,703
Purchasing value of 2nd tier suppliers	16,552
Imported purchase value 2nd tier suppliers Intra SEA Europe (-)	
Imported purchase value 2nd tier suppliers Extra SEA Europe (-)	3,982
Domestic purchase value 2nd tier suppliers	12,570

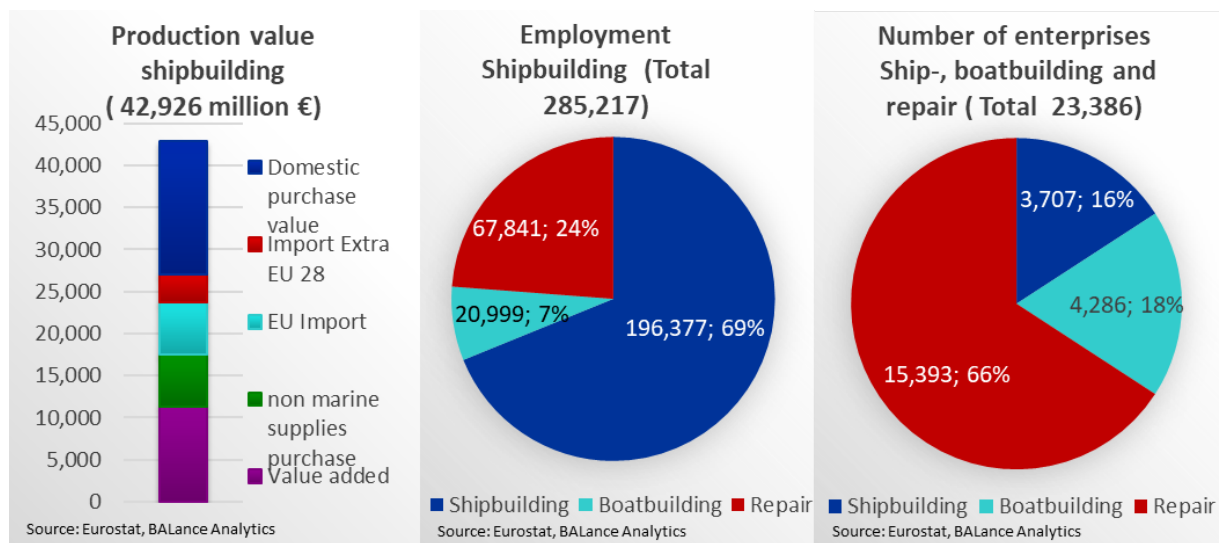
Figure 13: Aggregated economic portfolio SEA Europe 16: Part 2 (2012-2016)

[Source: Eurostat, National Statistics, Economic Studies and BALance Analytics, 2019]

Portfolio - EU-28



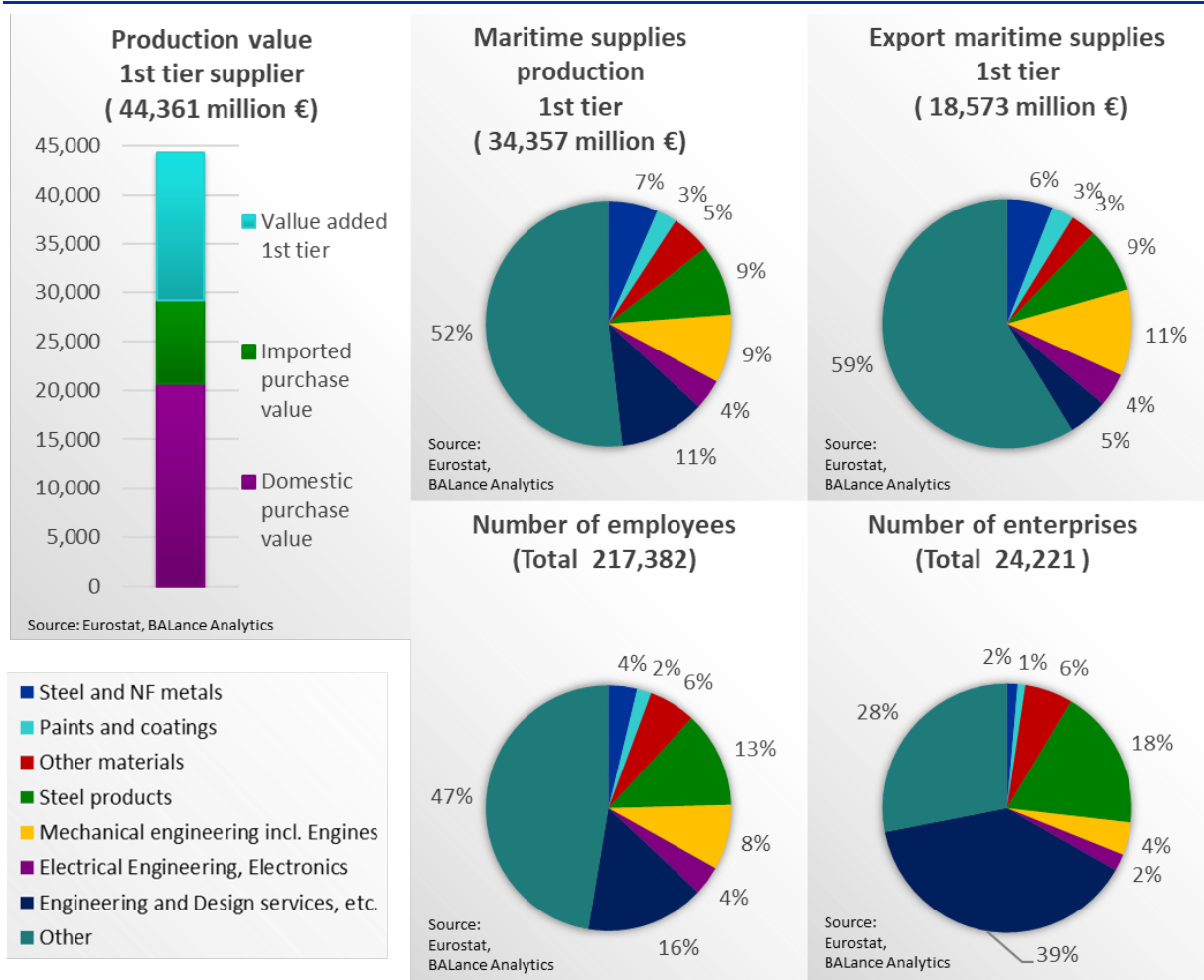
Shipbuilding (million EUR)	Indicators
Production value 42,926.1	
Value added (-) 11,348.4	26.44% Value added / Production value
Non marine supplies purchase (-) 6,164.0	14.36% Purchasing value overhead / Production value
Marine equipment purchasing value 25,413.8	59.20% Purchasing value / Production value
Imported intermediate products Intra EU-28 (-) 6,246.9	24.58% Import Intra EU-28/ Purchasing value
Imported intermediate products Extra EU-28 (-) 3,225.6	12.69% Import Extra EU-28/ Purchasing value
Domestic purchasing value 15,941.2	62.73% Domestic purchase value / Purchasing value



EU-28 - Marine supplies 1st tier (million EUR)	Indicators
Production value for domestic Ship- and boatbuilding 15,941.2	35.81% Share for the domestic market
Production value for other domestic maritime markets (+) 10,004.0	22.47% Share of other maritime markets
Production value export Intra EU 28 (+) 6,246.9	14.03% Share of export market intra EU
Production value export Extra EU 28 (+) 12,326.1	27.69% Share of export market extra EU
Production value of maritime supplies (1st tier) 44,518.2	
Value added (1st tier supplier) (-) 15,172.8	34.08% Value added/Production value
Purchasing value of 1st tier suppliers 29,345.4	65.92% Purchasing value / Production value
Import share Intra EU 28 (-) 5,477.1	18.66% Import Intra EU 28 / Purchase value
Import share of Extra EU 28 (-) 3,085.5	10.51% Import Extra EU 28 / Purchase value
Domestic purchasing value (2nd tier suppliers) 20,782.8	70.82% Domestic purchase value / purchasing value

Figure 14: Aggregated member states portfolios EU-28: Part 1 (2012-2016)

[Source: Eurostat, National Statistics, Economic Studies and BALance Analytics, 2019]



EU-28 - 2nd tier suppliers (million EUR)

Domestic production value for domestic 1st tier suppliers (2nd tier)	20,783
Production value for export for Intra EU-28 (+)	5,477
Production value for export for Extra EU-28 (+)	866
Total domestic production volume 2nd tier suppliers	27,126
Value added (2nd tier supplier) (-)	12,500
Purchasing value of 2nd tier suppliers	14,626
Imported purchase value 2nd tier suppliers Intra EU-28 (-)	2,218
Imported purchase value 2nd tier suppliers Extra EU-28 (-)	1,083
Domestic purchase value 2nd tier suppliers	11,324

Figure 15: Aggregated member states portfolios EU-28, Part 2

[Source: Eurostat, National Statistics, Economic Studies and BALance Analytics, 2019]

5 Average annual data (2012-2016) for top 10 European countries and comparison of SEA Europe 16 with EU-28

Based on the overall statistical analysis of European countries, which aggregated in the summarizing portfolios for EU-28 and SEA Europe 16 given in chapter 4, the evaluation given in this chapter is comparing the numbers between EU-28 and SEA Europe16 and give comparable figures for the top 10 countries for each value,

The data addressed in this chapter (average annual figures for the period 2012-2016) are the following:

- Annual average **production values** for “shipbuilding, boatbuilding and repair”, 1st tier suppliers and 2nd tier suppliers (Figure 16 and 17)
- Annual average **value added** for “shipbuilding, boatbuilding and repair”, 1st tier suppliers and 2nd tier suppliers (Figure 18 and 19)
- Marine supplies production values for export (Figure 20 and 21)
- Trade balance comparing aggregated figures of export production with figures for import values. (Figure 22 and 23)
- Number of employees in shipbuilding supply chain (Figure 24 and 25)
- Number of Enterprises in the supply chain (Figure 26)

Finally, the chapter is concluded by a brief discussion on additional induced economic impact created through the net income of the employees working in the shipbuilding value chain.

5.1 Production value of the shipbuilding supply chain.

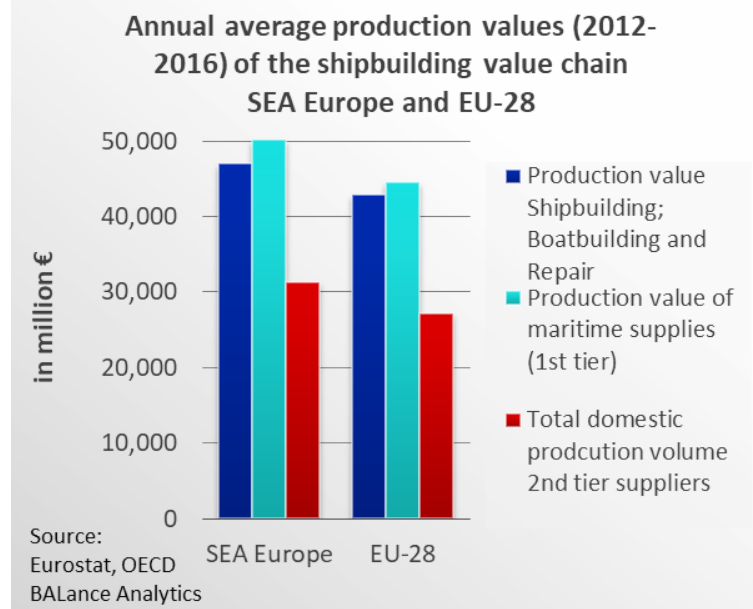


Figure 16: Comparison SEA Europe and EU-28 - Global Production values of the shipbuilding supply chain in million EUR (average 2012-2016)

[Source: Eurostat, OECD, National statistics and BALance Analytics, 2019]

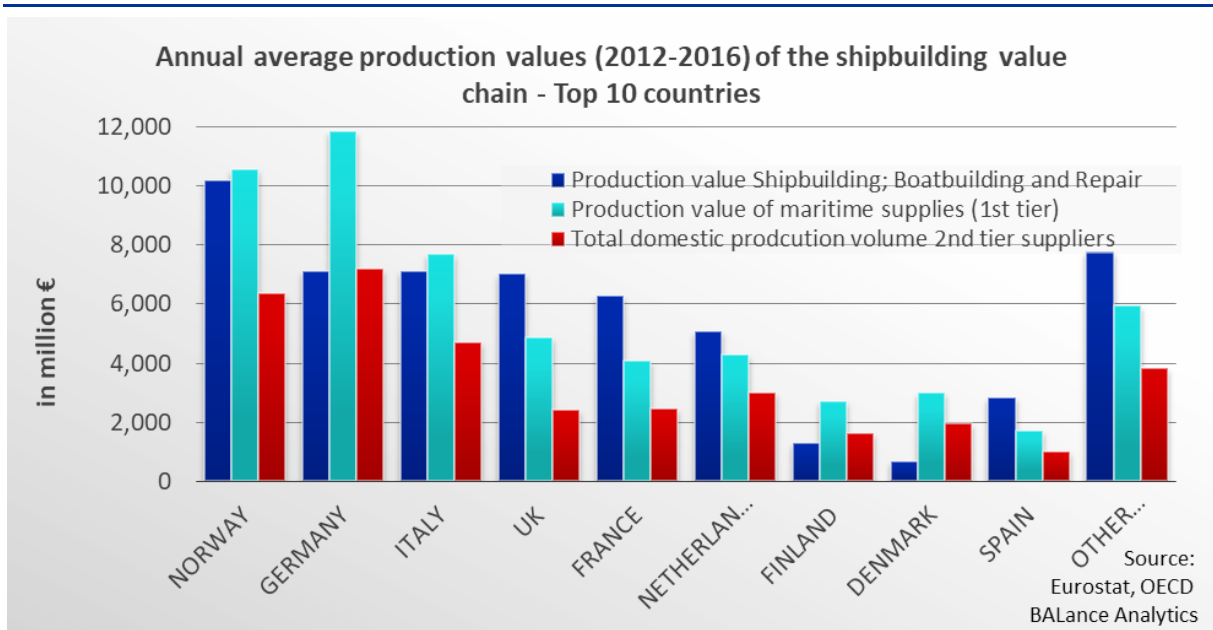


Figure 17: Top 10 European countries - Global Production values of the shipbuilding supply chain in million EUR (average 2012-2016)

[Source: Eurostat, OECD, National statistics and BALance Analytics, 2019]

5.2 Value added by the shipbuilding supply chain

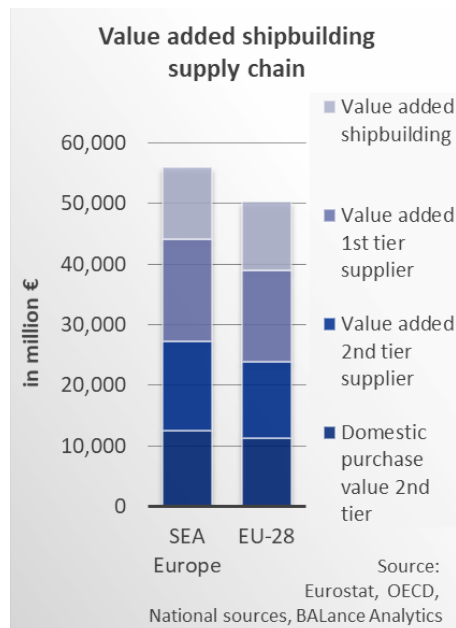


Figure 18: Comparison SEA Europe and EU-28 - Value added shipbuilding supply chain

[Source: Eurostat, OECD, National statistics and BALance Analytics, 2019]

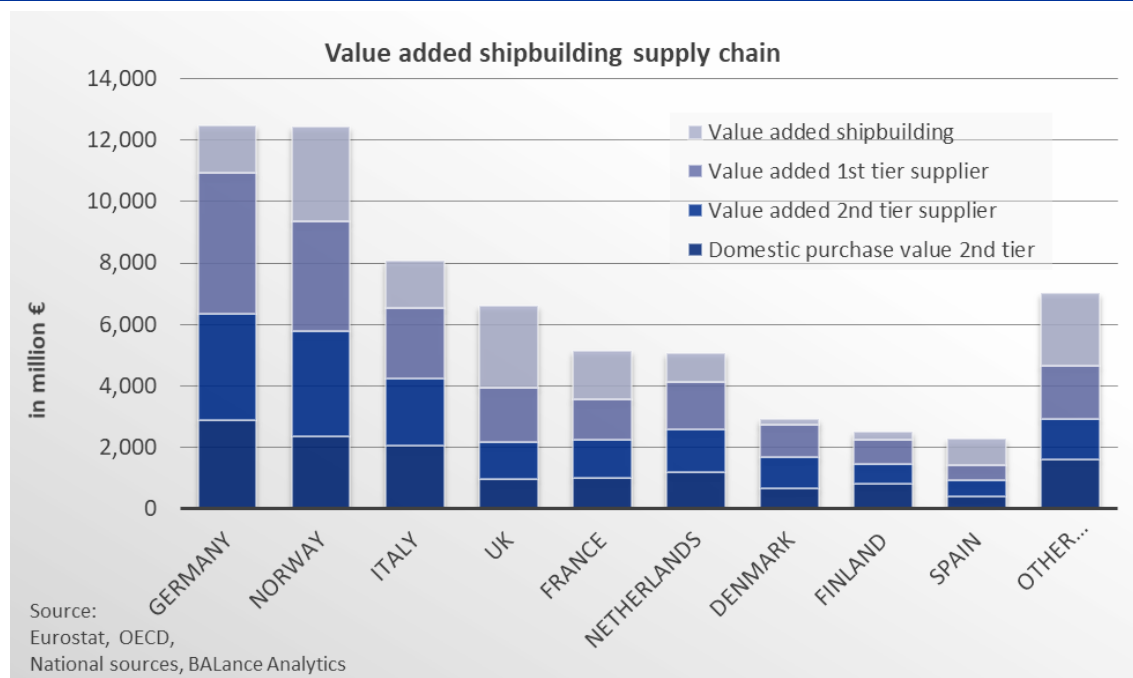


Figure 19 Top 10 European countries - Value added shipbuilding supply chain – “Other countries” aggregates all countries not displayed in this figure as single country

[Source: Eurostat, OECD, National statistics and BALance Analytics, 2019]

5.3 Export value for marine supplies

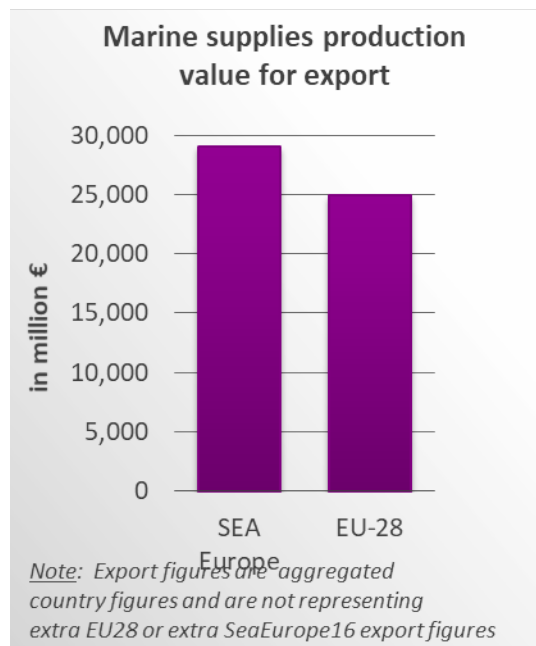


Figure 20: Comparison SEA Europe and EU-28 - Export value in million EUR (average 2012-2016)

[Source: Eurostat, OECD, National statistics and BALance Analytics, 2019]

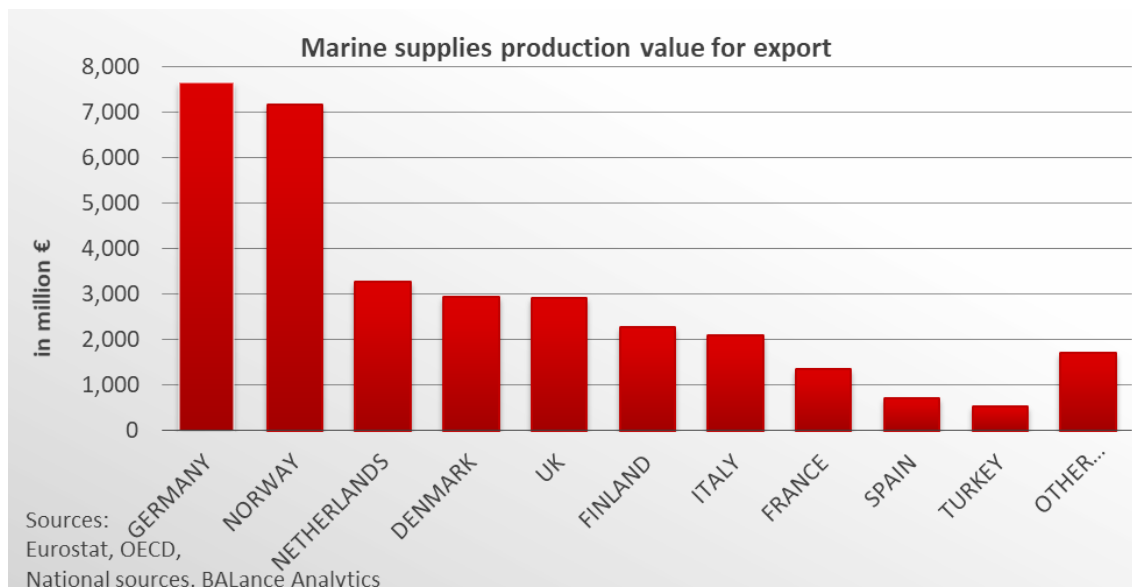


Figure 21: Top 10 European countries - Export value in million EUR (average 2012-2016)

[Source: Eurostat, OECD, National statistics and BALance Analytics, 2019]

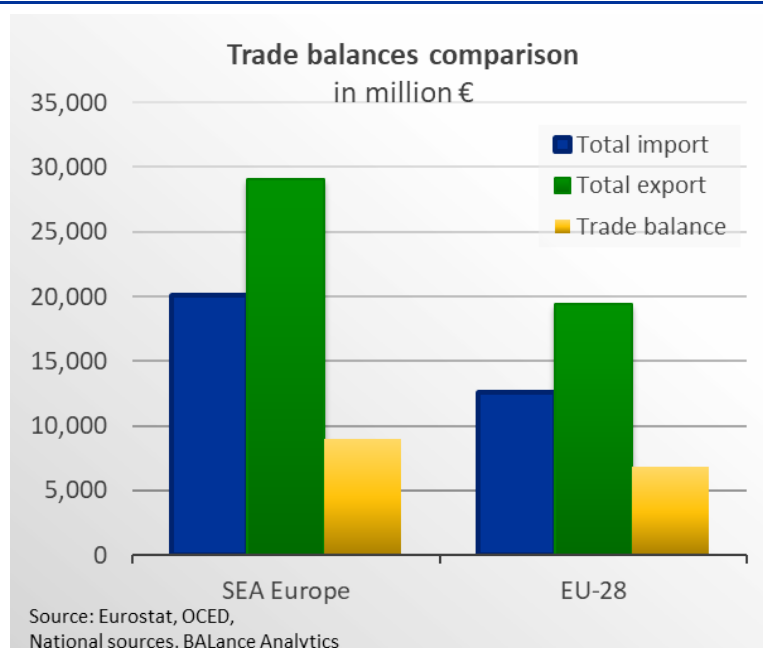


Figure 22: Comparison SEA Europe and EU-28 – Trade balance in million EUR (average 2012-2016)

[Source: Eurostat, OECD, National statistics and BALance Analytics, 2019]

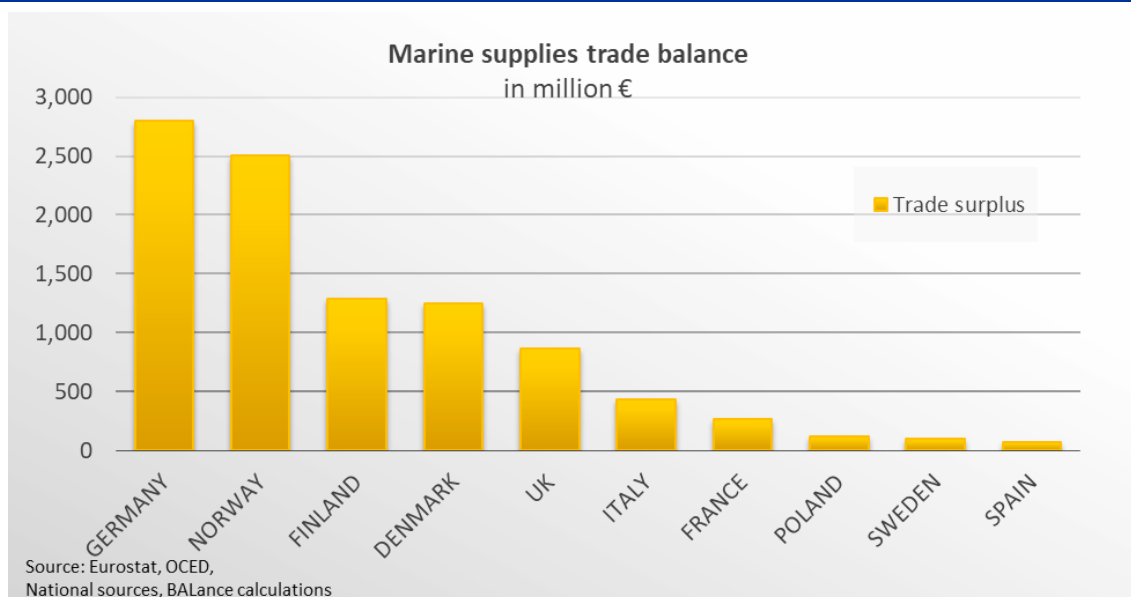


Figure 23: 10 European countries - Trade balance in million EUR (average 2012-2016)

[Source: Eurostat, OECD, National statistics and BALance Analytics, 2019]

5.4 Employment

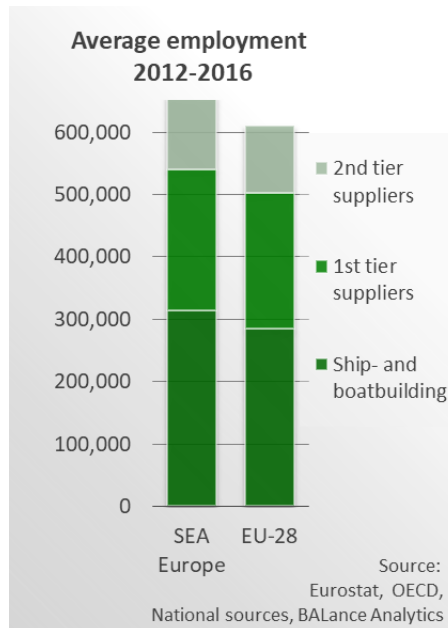


Figure 24: Comparison SEA Europe and EU-28 - Number of employees in shipbuilding supply chain

[Source: Eurostat, OECD, National statistics and BALance Analytics, 2019]

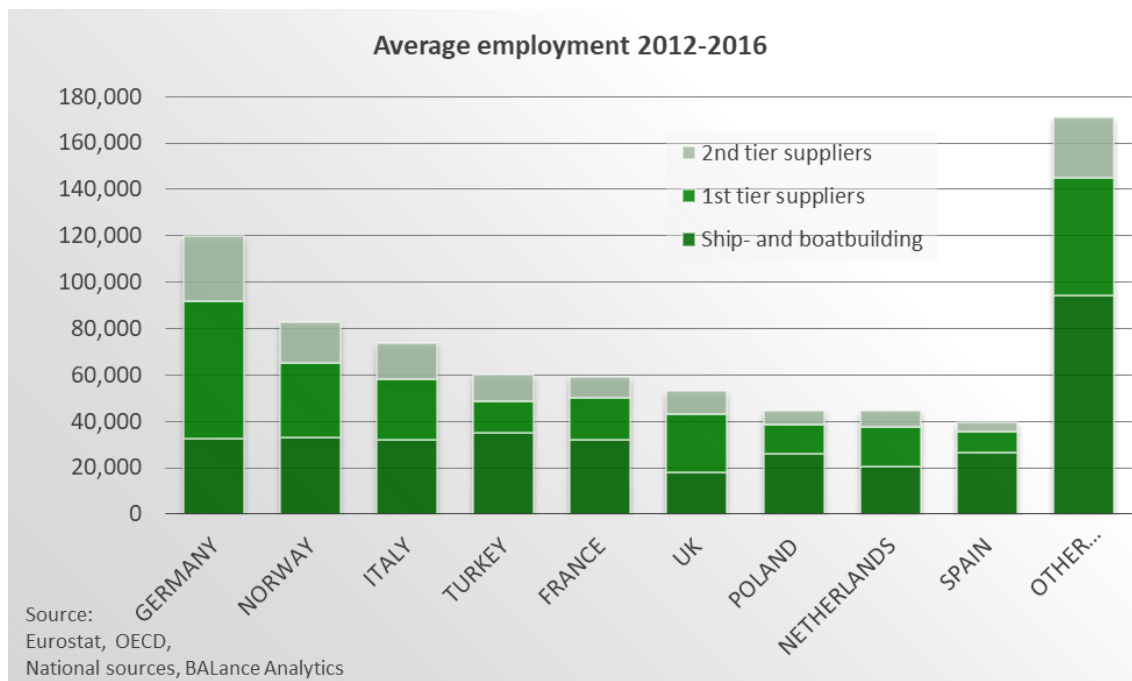


Figure 25: Top 10 European countries - Number of employees in shipbuilding supply chain per country (1st and 2nd tier), – “Other countries” aggregates all countries not displayed in this figure as single country

[Source: Eurostat, OECD, National statistics and BALance Analytics, 2019]

5.5 Enterprises

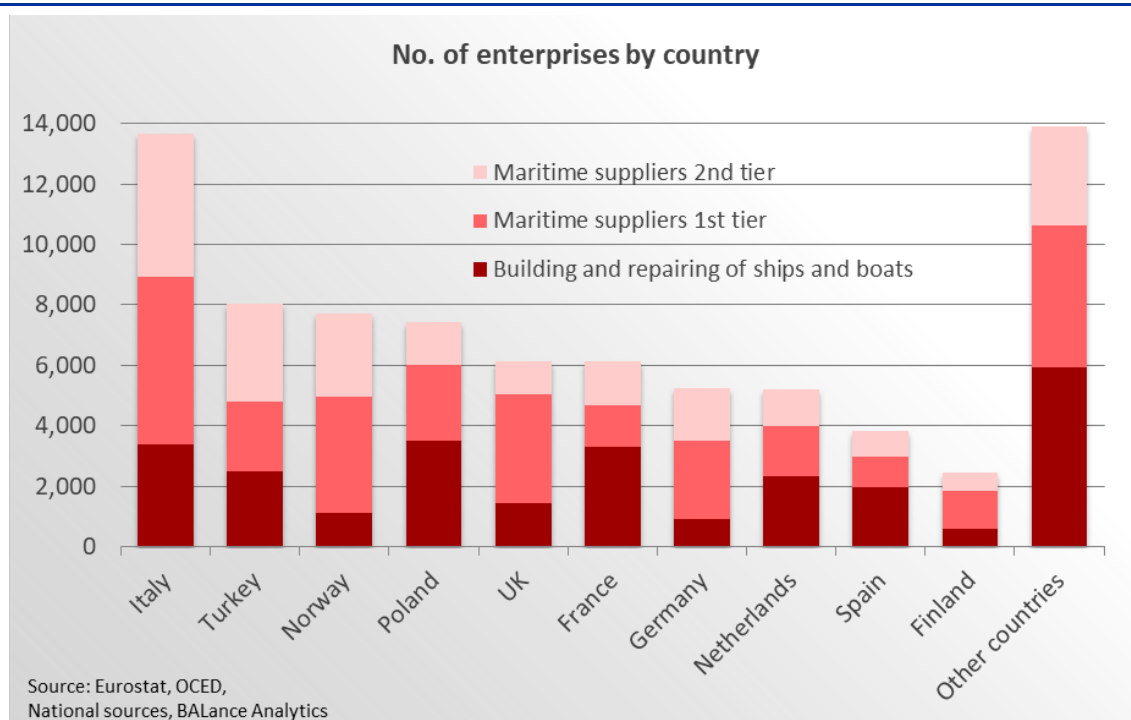


Figure 26: Top 10 European countries - Number of enterprises per country (Maritime suppliers combine enterprises of the 1st and 2nd tier suppliers.)

[Source: Eurostat, OECD, National statistics and BALance Analytics, 2019]

5.6 Additional induced economic impact

Beyond the direct contribution of the maritime technology industry, we can assume additional contributions to the overall economic footprint of the industry. This value can be estimated by taking the 660,000 employees in the industry supply chain (SEA Europe 16 member states) as calculated and multiply this number by the average annual net earnings of EUR 30,000⁴. By using these figures, the maritime technology industry creates an additional value of EUR 19,800 million net income, which are available for consumption and expenses for the daily life. If annual gross earnings would have been considered, the economic impact would be even higher, because then the contributions to taxes and social charges to be paid by the employee would come on top.

⁴ Eurostat 2015 average for EU-28 lower end: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Annual_net_earnings,_2015_\(EUR\)_YB17.png](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Annual_net_earnings,_2015_(EUR)_YB17.png).